

Rocket City Weather

National Weather Service, Huntsville, AL

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Welcome to the Office

A message from Michael Coyne, Meteorologist-In-Charge

Tornadoes, flooding, hail, tropical storms, extreme heat, drought, snow and ice. My five years as the Meteorologist-In-Charge of WFO Huntsville has seen no shortage of weather threats to the Tennessee Valley. With a list like that you might think we had an unusual five years, but that is not the case. If anything, this list is too short and doesn't fully explain all of the things we do within the community.

This newsletter will tell you about the work we do in not only during severe events, but also about the work we do on a daily basis to benefit you. You will read stories about our staff, breakdowns of severe weather events, our collaborative efforts with other groups, and even our work to support the community outside of our normal responsibilities.

Our job at the National Weather Service is to give you the best weather information possible so that you can take action when needed. We hope you enjoy our newsletter and learn more



Michael Coyne poses outside by our sign during one of his first days at the office.

about our work, our research, and the staff members that serve you every hour of every day. I know I speak for the staff here when I say we are thankful for the area's enthusiasm in weather and the support they have shown the WFO in our six years of existence.

Car vs. Ditch—No Good Answers!

Modified from the 2010 Severe Weather Awareness Week Brochure

“Recently, the American Red Cross and the National Weather Service revised the tornado safety rules regarding what to do if you are in your car when a tornado approaches.

While a car offers the possibility of actually escaping a tornado and may offer some protection from weaker tornadoes, there are factors

that point against such advice. Escaping a tornado by car depends on accurately determining the motion of the tornado and then finding a route that will take you away from danger. Of course, your safety then depends on you and the other vehicles driving safely in a high stress situation!

While it is estimated that it would take winds of over 115 mph to

overturn most cars, there is still a danger of flying debris as well as breaking glass. Also, it is virtually impossible to determine the strength of a tornado just by how bad it looks—the recent tornado in Huntsville had no visible funnel touching the ground yet was able to toss a pick up truck 20 feet!

...Continued on next page



Car vs. Ditch—No Good Answers!

...Continued from Page 1

On the other hand, the option of leaving your vehicle and finding a ditch is also not without its own limitations. There are dangers such as running across rough terrain or encountering fencing and other obstacles. The possibility of getting muddy and/or wet in a ditch pales in comparison to getting hurt. Most debris will likely pass over your head, but if you miscalculate and are not far enough away from the road, your car or other heavy debris could be thrown on top of you.

Clearly, neither of these options is a good one! The NWS and the American Red Cross advise you not to put yourself in a situation where you have to decide whether to stay in your car or head for a ditch. When severe weather is approaching, limit your outdoor plans or finish them early. Stay close to a sturdy shelter. When the warning is issued, take shelter immediately. A small room in the middle of the house on the lowest possible level is your best option. Remember—put as many walls between yourself and the tornado as possible.”



NWS Huntsville in the Community

Chelly Amin, Forecaster

At the National Weather Service in Huntsville, we forecast the weather daily to let you know if it is going to be hot or cold, and wet or dry. During severe weather, we issue warnings to keep you safe. But that's not all we do!

We frequently engage the public during large events such as Panoply, Big Spring Jam, the Huntsville Airshow, Huntsville Stars games, and the Jack Daniels Barbeque Festival, just to name a few. We also work closely with local area emergency managers during 'Be Ready' day, a day when first responders, insurance companies, and other disaster relief agencies come together to explain their services to the public. Large events like these allow us to interact with many people, giving us a chance to explain our mission of protecting life and property.

We also visit local schools and speak with students about the importance of weather safety. Our presentations are suitable for all ages, from kindergarten through high school, and are full of

educational weather pictures and videos.

You are also more than welcome to come and tour our office here on UAHuntsville's campus. Your group will see a presentation explaining the nuances of forecasting for the Tennessee Valley and give you a better idea what types of projects we work on during quiet weather. Your group will also tour our operations area and show you how we forecast and what actions we take during severe weather.

If you are interested in having us attend your next event, visit your school, or to schedule an office tour, please contact us at our webmaster email account, at SR-HUN.Webmaster@noaa.gov. When you email, please have a reserve date in mind as you never know when Mother Nature may have something in store for the Tennessee Valley!

We look forward to meeting you!



Forecaster Andy Kula gives a presentation to a local community group last fall..

Tornado Myths: Fact or Fiction

Krissy Scotten, Forecaster

Since we are in the heart of the Spring Severe Weather Season, this is a great time to talk about tornadoes and the false misconceptions that come with them. To begin, we must first define a tornado. The National Weather Service defines a tornado as a violently rotating column of air descending from a thunderstorm that is in contact with the ground. Most tornadoes are weak and short-lived; however, in some instances tornadoes can be very strong and last for over an hour producing considerable damage and injuries. Below are some MYTHS and FACTS about tornadoes.

MYTH: It is not a tornado unless the entire funnel is touching the ground.

FACT: Many tornadoes exhibit incomplete funnels or no funnels at all during their life cycles. In many instances, there will be debris visible on the ground below the funnel or wall cloud attached to the main cloud base.

MYTH: Extremely low pressure in a tornado causes buildings to “explode” as the tornado passes overhead.

FACT: Violent winds and debris cause the majority of structural damage.

MYTH: Windows should be opened prior to a tornado to equalize pressure and minimize damage.

FACT: Opening windows wastes valuable time. Go immediately to your safe place! Homes are actually damaged and destroyed by high winds and debris hitting the house and not the pressure. Additionally, opening the windows may actually let the strongest winds inside which may produce failure of the entire structure. Remember, stay away from the windows!



MYTH: Some cities are protected by hills, valleys, bluffs, or by its own large buildings and structures.

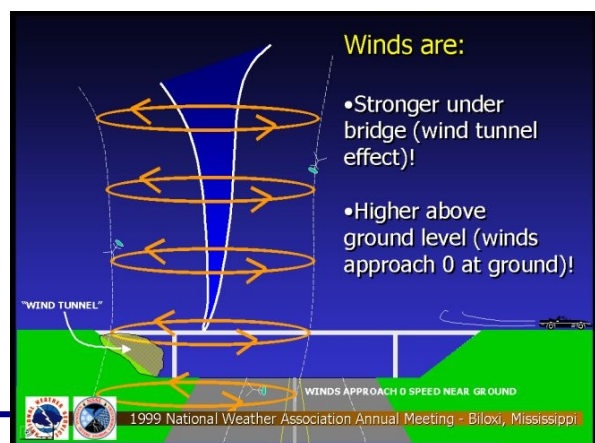
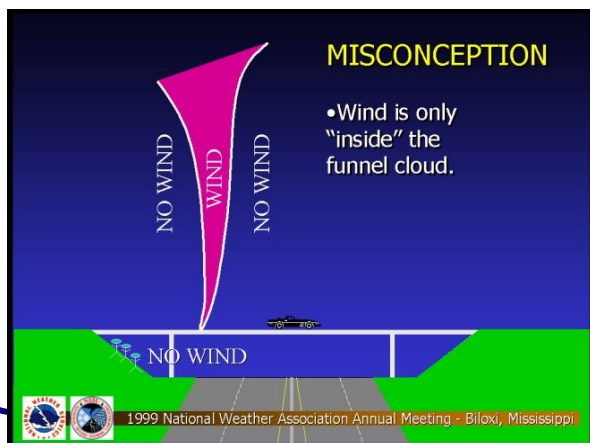
FACT: Tornadoes can occur anywhere, anytime. Large cities such as Oklahoma City, Miami, Nashville, Memphis, Huntsville, and Fort Worth have all been hit by tornadoes. Physical geography provides no barriers to a tornado's path.

MYTH: Highway overpasses are safe to take shelter under during a tornado.

FACT: Winds extend well outside the visible funnel and are very strong just above the ground surface. Hiding under an overpass is similar to standing next to a cement wall completely unprotected from the flying debris.

MYTH: Mobile homes attract tornadoes.

FACT: Tornadoes are not selective. A tornado is equally likely to hit a brick home, mobile home, a business, a forest, or an open field. Mobile homes are just a bit more vulnerable to devastating wind damage than other structures.



Inside the NWS: Working Severe Weather

Brian Carcione, Forecaster

Most people may be aware that the National Weather Service is responsible for issuing watches and warnings. But it takes the effort of many individuals to effectively warn the public of threatening weather. A severe weather outbreak that covers much of the Huntsville county warning and forecast area may require as many as a dozen people working simultaneously! On the other hand, more isolated events may only need three or four people. What are all of these people doing during severe weather? They are filling one (or sometimes more) of the following roles.

warning process. Usually there is at least one dedicated communicator whose only job is to distribute information on dangerous storms and answer questions, using specialized radios and telephone equipment to stay in touch. Someone at the "comms desk" also monitors an online computer chat room which enables fast and easy communication with emergency managers and local TV and radio stations.

If you call the National Weather Service during a severe weather event, often the first person you'll speak to is a public service staff member. The public service team performs some vital roles: monitoring NOAA Weather Radio for potential problems, and answering customer phone calls. During lulls in the activity, he or she may be tasked with issuing local storm report (LSR) products to alert customers to reports of storm damage, and may be responsible for issuing climate or river updates.

At least one person is tasked with a basic but important task: forecasting the weather. Aviation forecasts for the Huntsville and Muscle Shoals airports can be particularly challenging during active weather, but very important since pilots and airports need to plan for thunderstorm impacts. The forecaster(s) also may be tasked with coordinating severe thunderstorm or tornado watches with the Storm Prediction Center, then removing counties from the watches as the severe weather threat abates.

In some circumstances, someone may be assigned to be the "mesoscale analyst". This meteorologist spends all of their time examining trends in current weather observations, satellite, and radar data, to determine how small changes in the weather conditions might affect thunderstorms. Often this analysis requires getting "back to basics" by printing out a map of current conditions then drawing and coloring features of

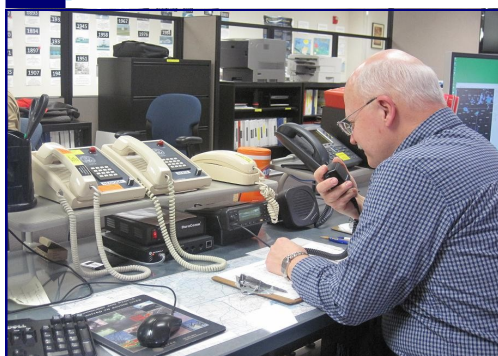


Michael Coyne prepares to issue a warning using WarnGen.

interest such as strong winds or areas of moisture. The mesoscale analyst helps support the warning forecaster by helping them to understand how a thunderstorm might evolve, and whether more warnings are needed.

The NWS office may sometimes utilize a volunteer amateur radio operator. He or she controls and monitors the regional SKYWARN network for reports and relays them to the warning forecasters so they are aware of what's happening on the ground.

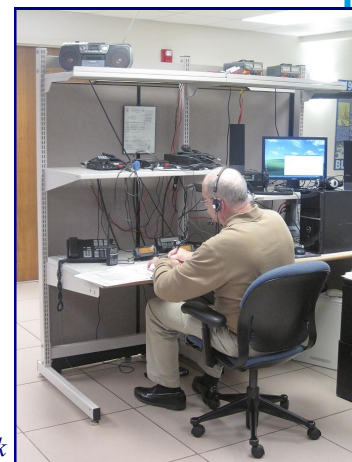
If this sounds like there is a lot going on, it is! That is why many events include a coordinator, who keeps an eye on the "big picture." He or she monitors and reassigns roles and responsibilities, is aware of the watches, warnings, or advisories that are in effect, and might be looking ahead to see what additional challenges the team might have to face.



Observing Program Leader Lary Burgett working in the communications area.

There is at least one warning forecaster, and often as many as two or three. The warning forecaster is on the front lines during a severe weather situation, responsible for scouring the radar data for signs of damaging winds, large hail, or tornadoes. When a dangerous storm is identified, the meteorologist uses a special computer program called "WarnGen" to track the storm and draw a box around the area of greatest concern. The software converts that information into a severe thunderstorm, tornado, or flash flood warning which is broadcast to the world.

Communicating critical information to first responders, emergency management personnel, and media partners is an important part of the



SKYWARN Amateur Radio Operator Doug Hilton hard at work

Social Media: The Wave of the Future

Brian Carcione, Forecaster

“Social media” is a phrase that’s thrown around a lot these days, and services like Facebook and Twitter sometimes have a reputation more geared towards entertainment than meteorology. But there are some interesting uses cropping up across the National Weather Service (NWS), including here in the Tennessee Valley. NWS Huntsville is one of several NWS offices nationwide testing Twitter for the use of receiving storm reports. Twitter users who send a message (called a “tweet”) with a specific code (called a “hash tag”) and their location can have their reports incorporated into NWS systems. However, the entire message has to remain short—tweets can’t be longer than 140 characters! One example might be:

#wxreport WW Lexington, AL
WW Winds knocked down several trees about 5 minutes ago

NWS computer systems key on the #wxreport hash tag, and the location indicated between the “WW” characters to pinpoint the user’s location and determine what occurred. NWS forecasters can then view the storm report on a Google Maps interface to help with public warnings and forecasts. (More information on this experimental service can be found on the NWS Huntsville web page at weather.gov/huntsville.)

But the utility of Twitter doesn’t stop there. NWS forecasters can also search all of the “tweets” for specific terms, phrases, or “hash tags” to get an almost live perspective on current weather conditions. NWS Huntsville is also a partner in sending “tweets” with the nsstcweather account (twitter.com/nsstcweather). NWS, NASA, and UAHuntsville meteorologists can use this method to send short tidbits of information about upcoming weather, outreach events, and collaboration efforts, as well as answering questions and gathering information from interested “Twitterers.”



Finally, the National Weather Service has also created a national presence on Facebook with a “fan page:”

www.facebook.com/US.National.Weather.Service.gov

Panoply Arts Festival

Sandy LaCorte, Student Intern

The 29th Annual Panoply Arts Festival in downtown Huntsville is just around the corner! This fun-filled event of local art, theater, music, and food will take place April 23rd-25th at Huntsville’s Big Spring International Park. The National Weather Service (NWS) in Huntsville, along with the UAHuntsville American Meteorological Society (AMS) will be in attendance to discuss weather safety and answer questions about the weather, along with plenty of fun activities for the kids. In collaboration with the NWS, the UAHuntsville AMS recently held its Annual Tennessee Valley Severe Weather Poster Contest for Tennessee Valley students in grades 1 through 8. This year’s slogan is “It’s Severe Weather Time Again: Plan and Prepare in 2010!” and finalists from this year will have their posters on display at the NWS booth where you are invited to vote on their favorite poster.



Stop by and say hello!

A Look Ahead: Interpreting Climate Forecasts

Jennifer Lee, Forecaster

Maybe it's just me, but it really seems like this winter stretched on for considerably longer than most winters. Now that Spring is finally here, let's take a few minutes to look ahead at the climate forecast issued by the Climate Prediction Center (CPC).

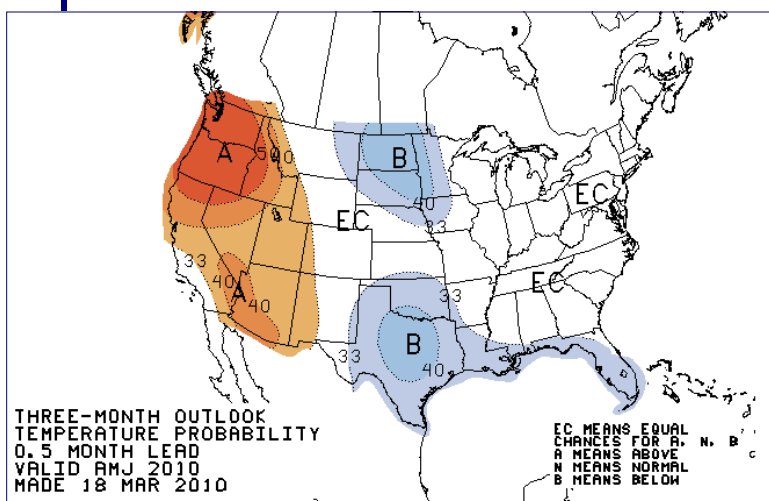
Let's start with a little background. The CPC (which is a part of the National Oceanic and Atmospheric Administration and the NWS) issues three month temperature (and precipitation) outlooks for the United States. These outlooks represent the

category, and a 17% chance for the Below Normal category. In the Tennessee Valley, the "EC" means there is a 33% chance for the AMJ temperature to be in each category. You'll notice the three month Precipitation Outlook also places the Tennessee Valley in the EC category (below).

The CPC issues three month outlooks over a year in advance; there is currently already an outlook for the AMJ 2011 time period available on the CPC website if you're interested. Keep in mind that just like the weather forecasts issued by your local NWS Huntsville Office, the CPC will continue to refine their forecast over time. But as a reference, the July August September 2010 Outlook calls for a 40% chance for the average temperature to be in the Above Normal category across the Tennessee Valley, with EC in the Precipitation Outlook for the same period.

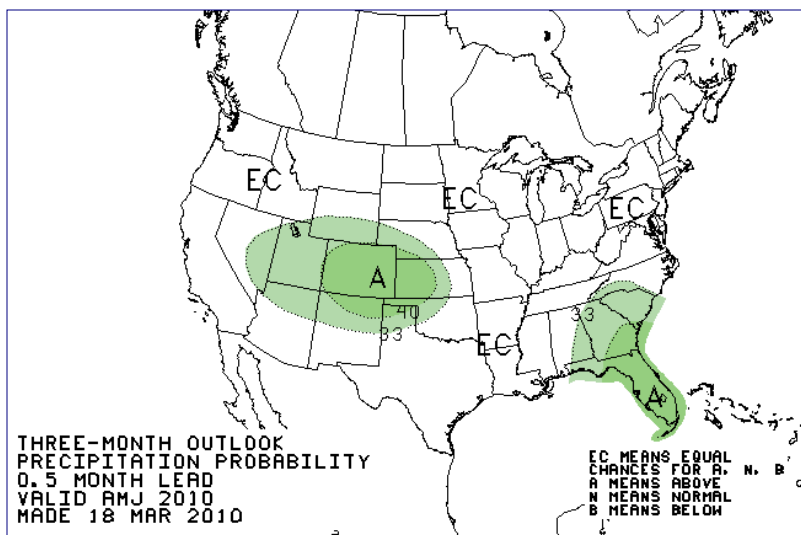
As a short aside for those with an interest in tropical weather, the official Atlantic Hurricane Season Outlook will be issued in May. Stay tuned for the information; we'll be sure to post it on our homepage as a Top News item. If you care to follow the National Hurricane Center yourself, you may do so at: www.nhc.noaa.gov.

*"...the July August
September 2010
Outlook calls for
a 40% chance
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be in the Above
Normal
category..."*



expected chance for the average three month temperature to occur in one of the three temperature (precipitation) categories: Above, Near or Below Normal. The categories are based on observations from the present climatological reference period of 1971 through 2000. During this 30-year period, temperatures (precipitation) were in the Below Normal category 1/3 of the time, in the Near Normal category 1/3 of the time, and in the Above Normal category 1/3 of the time. In other words, during 1971-2000, there was an Equal Chance (EC) for the average 3-month temperature (precipitation) to fall in any one of the three categories. The CPC outlooks reflect a change in these odds.

Let's examine the April May June (AMJ) Temperature Outlook as an example (above). The interpretation for the Pacific Northwest is as follows: There is a 50% chance for the average AMJ temperature to be in the Above Normal category, a 33% chance for the Near Normal



Want to be a Meteorologist?

Krissy Scotten, Forecaster

Everyone talks about the weather, but have you really thought about who puts out the forecast on a daily basis? Most meteorologists in the National Weather Service (NWS) have been weather enthusiasts since a very young age. We've enjoyed thunderstorms and watching clouds since grade school. If this sounds like you, keep reading!

What does it take to become a NWS meteorologist? Most people think it's a pretty easy job since "we don't have to be right all the time", but it's much more complicated than that. Ok, it can be very difficult if not impossible to predict precisely what is going to happen, but amazingly our science is able to track storm systems fairly well. So what kind of experience and education does it take to issue severe weather warnings or predict winter storms? For a NWS meteorologist, you need a college degree in meteorology or atmospheric science or a combination of education and experience. Meteorology is a physical science and the course work requires a fair amount of mathematics and physics. As a result, most meteorology majors graduate with enough coursework to have a minor in mathematics.

So after reading all of that and you're still interested, we've included some of the courses one must take:

Weather Analysis and Prediction of Weather Systems
Atmospherics Dynamics
Atmospherics Thermodynamics
Synoptic Meteorology
Physical Meteorology
Remote Sensing
Calculus and Ordinary Differential Equations
Physics
Chemistry

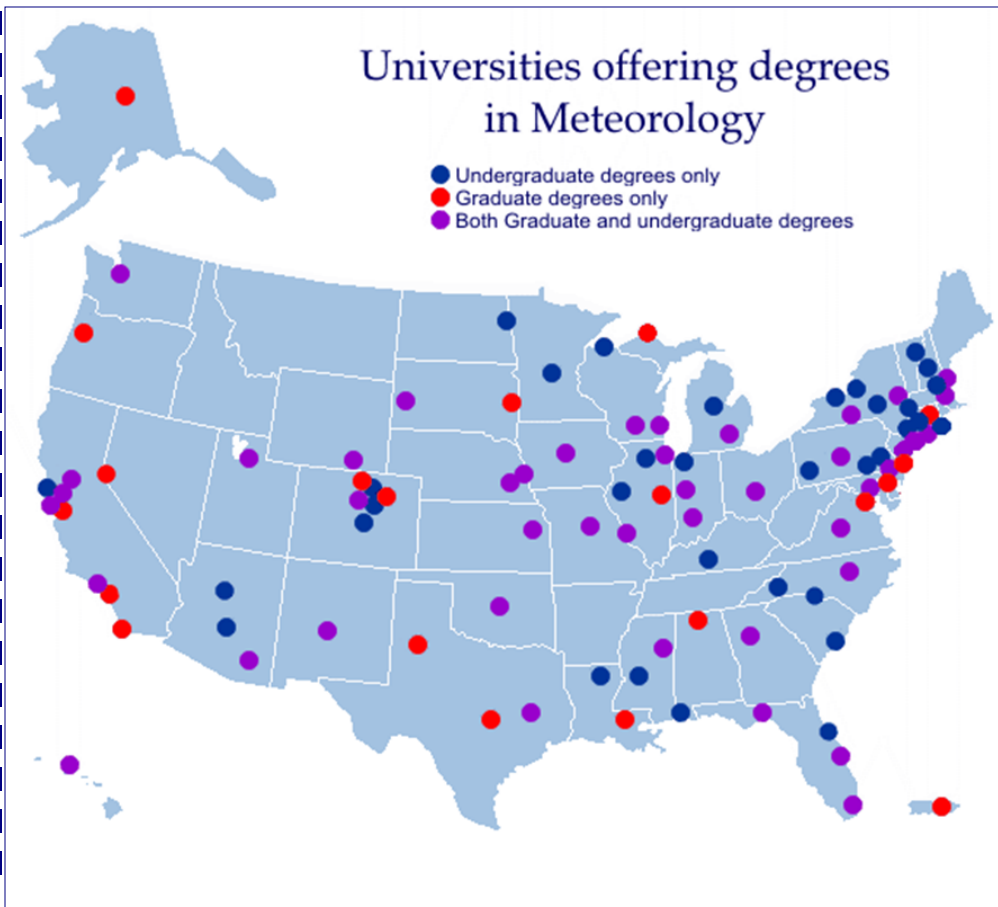
You will also need three electives that may cover the following areas:

Physical climatology, radiative transfer, aeronomy, advanced thermodynamics, advanced electricity and magnetism, light and optics, hydrology, and computer science.

"...meteorology is a physical science, so the course work requires a fair amount of mathematics and physics..."

That sounds like a LOT of HARD WORK and it is, but it will all be well worth the effort. After all of that course work you'll be ready to issue you first warning! Well, not quite. You'll need some time gaining experience at a weather office before you can make that decision, but you'll be well on your way to becoming a NWS meteorologist!

Left is a map of universities around the country that have Atmospheric Science/ Meteorology Programs. If you have any questions, be sure to contact one of these universities or your local National Weather Service office.



NWS Hosts Integrated Warning Team

Krissy Scotten, Forecaster

On February 9th, meteorologists from the National Weather Service in Huntsville met with their partners including local television media and county and state emergency managers. With approximately 40 people in attendance, the three groups spent most of their time discussing better ways to communicate and improve operations as well as coordinate efforts to educate the public about hazardous weather. Social sciences were also discussed in these sessions to gain a better understanding of the public's reaction to weather alerts and warnings. The day consisted of a variety of presentations from the NWS, a social scientist, and a FEMA representative. In addition, the day sparked lively discussions about finding better ways to communicate and work as a team.



WCM David Nadler wraps up the day with a discussion on decision support services.

The morning session consisted of a get-to-know you icebreaker and an explanation of the concept of an Integrated Warning Team. This team, made up of the broadcast media, emergency managers, and the National Weather Service, share the common goal and responsibility to keep the public safe during severe weather. By putting personal motivations aside and truly acting as a team with a shared goal and vision, the team is bound to achieve great things. NWS Meteorologist-In-Charge (MIC) Michael Coyne and Forecaster Krissy Scotten discussed the perspective on the NWS's role in the IWT, the duties, pressures, constraints, challenges, and opportunities for their group, and what they hoped to get out of this workshop.

Just before lunch, Warning Coordination Meteorologist

(WCM) David Nadler and Forecaster Andy Kula led an open discussion forum. Most of this discussion involved two main topics, including ways to foster better team communication and policy regarding the sounding of emergency sirens during severe weather events. Nearly all of the action items proposed occurred during this round table discussion.

During the afternoon session, attendees heard from presenter Dr. Eve Gruntfest, the Director of the Social Science Woven into Meteorology (SSWIM) at the University of Oklahoma. She discussed the importance and efforts in the movement of integrating social science into meteorology and decision making. FEMA Disaster Generalist, Cathy Carter Dempsey gave a presentation about the public's inability to react when weather events threaten their safety, called Optimism Bias. The last three presenters were all from NWS Huntsville. Science and Operations Officer (SOO) Chris Darden discussed the Super Tuesday Tornado Outbreak's impacts and lessons learned. Forecaster Jennifer Lee then compared two tornadoes that tore through Huntsville, AL almost 20 years apart occurring at almost the same location and time. She examined technology and communication differences from the 1989 Huntsville Tornado with the January 21st, 2010 Huntsville tornado. Finally, WCM David Nadler discussed effective communication and decision support services offered by the NWS Huntsville office.

Overall, the workshop was a success and fostered needed communication between the various team members. Plans are in the works to continue holding IWT meetings in the future.



Group participants network during a break in the activities.

Contact Information

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Huntsville, AL 35805

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Fax: 256-890-8513

www.weather.gov/Huntsville

Webmaster's Email Address:

sr-hun.webmaster@noaa.gov

Spotter Email Address:

sr-hun.spotter@noaa.gov

Reporting Weather

There are several ways to report hazardous weather conditions such as hail, wind damage, funnel clouds, tornadoes, exceptionally heavy rainfall or flash flooding:

1. **Call the office at 256-890-8503**
2. **Submit your report online**
3. **After the event, email pictures to:**
SR-HUN.Spotter@noaa.gov

Timely reports can save lives!

A Note from the Editor...

Jennifer Lee, Forecaster

You may remember the National Weather Service in Huntsville wrote a newsletter for some of our stakeholders, but it never gave full insight into the work we do, and we felt it was time to make our operations and office more transparent to the people we serve. Our goal with *Rocket City Weather* is to provide a twice-yearly update on operations and activities surrounding our office, with each issue published to coincide with the spring and fall severe weather seasons. This newsletter is still in its infancy, and there will likely be changes regarding format, frequency, and content between this inaugural issue and subsequent issues. Feedback from you, our customer and partner, is the best way for us to make improvements in the future. We welcome comments and questions about the newsletter or about the office!

Thank You!

Rocket City Weather

Inaugural Issue: Volume I, Issue I

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